

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
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PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing
(day/month/year) **08 SEPTEMBER 2008 (08.09.2008)**

Applicant's or agent's file reference
0315-638/TOA

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/US2008/006397

International filing date (day/month/year)

19 MAY 2008 (19.05.2008)

Priority date(day/month/year)

18 MAY 2007 (18.05.2007)

International Patent Classification (IPC) or both national classification and IPC

F04B 49/035(2006.01); F04B 49/00(2006.01); F04C 18/02(2006.01);

Applicant

EMERSON CLIMATE TECHNOLOGIES, INC. et al

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(1) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.
For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/KR
Korean Intellectual Property Office
Government Complex-Daejeon, 139
Seosun-ro, Seo-gu, Daejeon 302
-701, Republic of Korea
Facsimile No. 82-42-472-7140

Date of completion of this opinion

08 SEPTEMBER 2008 (08.09.2008)

Authorized officer

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Box No. 1 Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of:

- ☒ the international application in the language in which it was filed
- ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

2. ☐ This opinion has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, this opinion has been established on the basis of:

a. type of material

- ☐ a sequence listing
- ☐ table(s) related to the sequence listing

b. format of material

- ☐ on paper
- ☐ in electronic form

c. time of filing/furnishing

- ☐ contained in the international application as filed.
- ☐ filed together with the international application in electronic form.
- ☐ furnished subsequently to this Authority for the purposes of search.

4. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

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Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-20</u>	YES
	Claims	<u>None</u>	NO
Inventive step (IS)	Claims	<u>1-20</u>	YES
	Claims	<u>None</u>	NO
Industrial applicability (IA)	Claims	<u>1-20</u>	YES
	Claims	<u>None</u>	NO

2. Citations and explanations :

Reference is made to the following documents from the International Search Report (ISR):

D1: JP 2001-518601 A
D2: US 2005/0244277 A1
D3: US 6,213,731 B1
D4: KR 10-2005-0088765 A

1. Novelty and Inventive Step

1.1 Claims 1-12

The subject matter of independent claims 1 and 9 differs from the disclosures of D1-D4 in determining a pulse width the modulation ratio based on the target capacity and the first or second speed, and separating intermeshing scroll members according to the pulse width modulation cyclic ratio. Accordingly, claims 1 and 9 were not anticipated by any of the documents, nor would they have been obvious to a person skilled in the art by the documents, taken alone or in combination. Therefore, claims 1 and 9 meet the requirements of PCT Article 33(2) and (3) with respect to novelty and inventive step.

Claims 2-8 are dependant on claim 1 and claims 10-12 are dependant on claim 9. Therefore, claims 2-8 and 10-12 meet the requirements of PCT Article 33(2) and (3).

1.2 Claims 13-20

The subject matter of independent claims 13 differs from the disclosures of D1-D4 in comprising a controller that determines a first pulse width modulation ratio based on the target capacity and the first or second speed, and operates a scroll separation system according to the first pulse width modulation cyclic ratio. Accordingly, claim 13 was not anticipated by any of the documents, nor would they have been obvious to a person skilled in the art by the documents, taken alone or in combination. Therefore, claim 13 meets the requirements of PCT Article 33(2) and (3) with respect to novelty and inventive step.

Claims 14-20 depend on claim 13 and consequently they are also considered to be novel and to involve an inventive step under PCT Article 33(2) and (3).

2. Industrial Applicability

Claims 1-20 are industrially applicable under PCT Article 33(4).

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Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

The term "about" used in claims 3, 6, 10, 11, 14, and 17 is unclear because the numerical range defined by the term "about" is not definite. Therefore, claims 3, 6, 10, 11, 14, and 17 are unclear (PCT Article 6).

The recitation of "said upper portion" and "said lower portion" in claims 6, 11 and 17 lacks a positive antecedent basis. Therefore, claims 6, 11, and 17 are unclear (PCT Article 6).